# VENTILATED DISSECTION TABLE

## FIELD OF THE INVENTION

The present invention relates to the field of dissection tables.

## STATEMENT OF GOVERNMENTAL ASSISTANCE

Applicant hereby represents that no part of the subject invention or application has come about with the assistance of government funds or by virtue of a government program.

## BACKGROUND OF THE INVENTION

In the fields of education, particularly education of medical students of human anatomy, there is a need to use an apparatus which allows the convenient dissection of a human body or cadaver. The need for safety is not so much with respect to the use of surgical instruments, but instead refers to the need to evacuate noxious fumes from the work area which abound due to the use of formaldehyde and other preservative agents in the embalming of cadavers.

Previous to applicant's invention, dissection tables known to be in service require a significant amount of air movement in order to evacuate the aforementioned fumes. In some cases these tables require exhaust systems which move in excess of 2000 cubic feet per minute ("cfm") and up to and including 2500 cfm. Moving such a volume of air demands that a suitable ventilation duct be sized and in addition, a fan or blower must also be utilized which has a rating capable of moving such a large amount of air. In most circumstances, the air which must be "made up" as air containing noxious fumes is evacuated is conditioned air. Consequently, the amount of air moved in order to evacuate unwanted fumes has a cost component associated with it in terms of energy consumption, as conditioned air is typically chilled, and a fixed cost component as the make-up air must be routed to the location of the table via sufficient ducting, and a final associated cost component in terms of a blower or fan rated sufficient to move the air.

Several other considerations must be accounted for in the design of such tables, including

cleanliness; size and mobility being among those considerations.

Naturally, as a medical class progresses in its utilization of a human cadaver, there is an increasing risk to students of exposure to elevated levels of noxious fumes given off by the cadaver. It is important that suitable surface materials be utilized which can readily be cleaned and sanitized. Non porous materials are preferred, with stainless steel being an optimum choice when considering strength, weight, cleaning, fabrication and durability.

In addition to considerations of cleanliness and the movement of conditioned make-up air, during use, various fluids will be generated over time which must also be directed and finally disposed. Consequently, such tables must optimally be provided with a drainage system to handle such direction and disposal.

What is needed then is a dissection table which: utilizes optimal amounts of exhaust air; has a durable, cleanable surface; is relatively mobile; and, has adequate drainage and disposal provisioning.

## SUMMARY OF THE INVENTION

It is an object of applicant's ventilated dissection table to evacuate an optimum amount of air to remove noxious fumes thereby reducing several cost components: the size of ducting required; the rating of the blower or fan; and the resulting amount of conditioned make-up air and the associated energy cost to produce it. Applicant has found that by lowering the dissection table work surface to a position lower than the air chamber intake, that an improved "capture rate" of the table can be achieved. Instead of requiring between 2000 cfm to 2500 cfm of conditioned exhaust air, adequate capture performance can be achieved at around half, or 1200 cfm. The resulting reduction in exhaust air and conditioned air make-up constitutes a direct energy savings for the user.

Further, by reducing the amount of air movement, the associated ducting for make-up air

and exhaust can be sized smaller, having a further cost benefit associated therewith.

Applicant has provided a removable stainless steel work surface fashioned from 304 stainless steel. Stainless steel has desirable strength to weight and thickness ratios allowing it to be fabricated at reasonable cost, and affording the user a surgical grade surface which can be readily removed for cleaning with little effort.

Applicant's invention is comprised primarily of an air chamber which sits atop a pedestal. The air chamber essentially contains the support structure for the top, positioned near the ventilation inlets, the primary drain channels, and the secondary drain system with access thereto.

The pedestal serves to provide basic support for the air chamber which sits atop a "close-off" plate, houses the exhaust access and plenum, and a frame which can be fitted with casters for easy movement of the table. In the preferred embodiment, the air chamber, the pedestal and the work surface are all of the same material, 304 stainless steel. In the preferred embodiment, the air chamber and pedestal are typically fashioned from 16 gage stainless steel. Other equivalent materials may be used, such as galvanized, corrosion resistant carbon steel, or aluminum having had a suitable coating applied. In the preferred embodiment, the use of 304 stainless allows for the easy bending, cutting and welding of the material to fashion the various structural components.

It is a further object of the present invention to provide a relatively portable, or mobile dissection table. By making the overall size of the table 33 inches wide, and 84 inches long, the unit is long enough to accommodate a male cadaver, yet is narrow enough to allow the table to be moved through a standard 36" doorway. By further employing optional industrial grade casters with non-marring wheels, a user may re-configure his classroom or transport the dissection table to where it is needed with relatively little effort. Applicant has further provided that the air chamber may be disassembled from the pedestal for ease of shipping or storage.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an isometric view of the present invention;

Figure 2 is an isometric view of the top surface of applicant's invention;

Figure 3 is an isometric view of the air chamber of the preferred embodiment having the work surface removed;

Figure 3A is a cross-sectional view of the air chamber showing interior structure.

Figure 4 is a plan view of the air chamber in the area of the primary drain;

Figure 5 is an isometric view of the air chamber having the work surface removed and showing access to the exhaust duct; and

Figure 6 is a plan view of the air chamber with the work surface removed.

Figure 7 is an isometric end view of the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 shows the preferred embodiment of applicant's invention, dissection table 10. Also readily shown are air chamber 20 sitting atop pedestal 30. Exhaust duct 40 is provided at one end of pedestal 30, and casters 50 are provided at the bottom of pedestal 30 to allow ease of mobility. Pedestal 30 is provided with a close-off plate at its top, which supports air chamber 20. The basic structure is fabricated from 304 stainless steel or equivalent. As stated above, in the preferred embodiment, air chamber 20 and pedestal 30 are fabricated from 16 gage stainless which has the advantage of being easily formed by bending, has strength, may be welded, and is still relatively light in weight.

Fig. 2 depicts the basic configuration of removable work surface 70 proximate to air chamber 20. An inlet 80, proximate to said work surface provides a negative pressure, drawing whatever noxious fumes are attendant to the specimen being dissected down into the chamber for exhausting through pedestal 30 (not shown).

As can be seen in Fig. 2, work surface 70 is positioned inside the perimeter of and lower

than the top edges of air chamber 20, thereby allowing better capture performance of undesirable fumes, and operating at a lower cfm evacuation rate than other tables.

Fig. 3 shows a portion of air chamber 20 having work surface 70 removed. With the removal of the work surface, the underlying support structure can be viewed. Near the corner of air chamber 20 and along the perimeter thereof are positioned approximately 12 gusset support brackets, 90. Spot welded thereto are up to 4 lateral support beams 110. Atop support beams 110 rest up to 2 longitudinal work surface support channels 120. Also positioned atop gusset 90 is a primary gutter 130. The positioning of air inlet 80 can be seen in each of Figures 3 and 3A.

Figure 3A further depicts the positioning of work surface 70 atop the air chamber support structure, or pedestal, and the relative location at the bottom of chamber 20 of secondary gutter 140.

Figure 4 further discloses the structure of air chamber 20, showing lateral support beam 110, lateral support beam 120, primary gutter 130, and its associated drain, 150. Secondary drain 160 is also seen at the bottom of air chamber 20.

Figure 5 again depicts air chamber 20 with work surface 70 removed to expose the underlying support structure. In this view, the exhaust duct is evidenced by screen 170 and is positioned in the bottom of the chamber.

Figure 6 shows the bottom of air chamber 20 again with work surface 70 removed to expose the underlying structure. Underneath screen 170 is a plenum 180 which acts as the transition from the air chamber to exhaust duct 40.

Figure 7 shows the positioning of drain tube 190 from the primary drain and drain tube 210 from the secondary drain. Each drain tube can be accessed via an access door 220 provided in pedestal 30. A receptacle may be kept in this area of pedestal 30 to catch any effluent from the drains for later disposal.

Not shown are a fan or blower and ducting which are connected to exhaust duct 40 and which draw the air from air inlet 80 in air chamber 20 through screen 170 into plenum 180 and out exhaust duct 40.

While the invention has been described in connection with what is presently considered the most practical and preferred embodiment(s), it is to be understood that the invention is not limited to the disclosed embodiment(s) but, on the contrary is intended to cover various modifications and equivalent arrangements included within the scope of the appended claims.